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ABSTRACT

Laboratory research and initial studies of the effects of goal setting in the classroom indicate that goal setting increases achievement. Thus, goal setting may prove to be an effective motivational technique for use in the schools. Goal setting, however, is influenced by many factors such as knowledge of results, explicitness of goals, difficulty of goals, origin of goals, and monetary incentives. Research concerning the effects of these factors is reviewed to provide a basis for the development of classroom goal setting procedures. Classroom studies dealing with conferences and with goal setting are also summarized. Suggestions are provided for research to delineate the effects of goal setting variables in the classroom and for formative evaluations of goal setting procedures. (Author)

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Working Paper No. 47

Goal Setting: Review of the Literature And Implications for Future Research

Report From the Project on Variables
And Processes in Cognitive Learning

Wisconsin Research and Development
CENTER FOR COGNITIVE LEARNING

THE UNIVERSITY OF WISCONSIN
Madison, Wisconsin

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Working Paper No. 47

GOAL SETTING: REVIEW OF THE LITERATURE AND IMPLICATIONS FOR FUTURE RESEARCH

By John P. Gaa

Report from the Project on Variables and Processes in Cognitive Learning

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STATEMENT OF FOCUS

The Wisconsin Research and Development Center for Cognitive Learning focuses on contributing to a better understanding of cognitive learning by children and youth and to the improvement of related educational practices. The strategy for research and development is comprehensive. It includes basic research to generate new knowledge about the conditions and processes of learning and about the processes of instruction, and the subsequent development of research-based instructional materials, many of which are designed for use by teachers and others for use by students. These materials are tested and refined in school settings. Throughout these operations behavioral scientists, curriculum experts, academic scholars, and school people interact, insuring that the results of Center activities are based soundly on knowledge of subject matter and cognitive learning and that they are applied to the improvement of educational practice.

This Working Paper is from the Project on Variables and Processes of Cognitive Learning in Program 1. General objectives of the Program are to generate new knowledge about concept learning and cognitive skills, to synthesize existing knowledge, and to develop educational materials suggested by the prior activities. Contributing to these Program objectives, the Concept Learning Project has the following five objectives: to identify the conditions that facilitate concept learning in the school setting and to describe their management, to develop and validate a schema for evaluating the student's level of concept understanding, to develop and validate a model of cognitive processes in concept learning, to generate knowledge concerning the semantic components of concept learning, and to identify conditions associated with motivation for school learning and to describe their management.

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I

INTRODUCTION

Goal setting has been established as an effective technique for increasing achievement in laboratory settings. Given its success in these studies, it would seem that goal-setting procedures might be employed to increase learning in schools. This is especially true now that behavioral objectives are more completely specified by classroom teachers, thereby structuring classroom instruction in a way which makes it possible to specify goals in terms of these objectives.

However, only a few studies have evaluated the use of goal setting as a motivational technique in educational settings. Typically, goal-setting studies have been conducted in the laboratory and have focused on the effects of independent variables on goal setting. This kind of research is a necessary step in developing a maximally effective goal-setting procedure for classroom use. Unfortunately, few studies have synthesized the laboratory findings into classroom procedures and examined the effects of goal setting on curricular learning.

College students have most often been the subjects in laboratory studies. This is probably due to the ease of access to this population.

However, the generalizability of results from studies using college-age subjects is limited. The applicability of these results to ongoing classroom situations in elementary and secondary schools is questionable without further experimentation. Older subjects are better able to understand the concept of goal setting and require less explanation of the procedures involved than younger subjects. They also are better able to establish appropriate goals within the context of the tasks or skills to be mastered.

The type of tasks used in laboratory experiments may also limit the generalizability of the findings. Most often the studies have involved motor skill tasks or lower-level cognitive tasks. Motor skill tasks have included planing wood to pre-set dimensions (Lockette, 1956), the block turning portion of the Minnesota Rate of Manipulation Test (Helmstadter & Ellis, 1952) and making objects from tinker toys (Locke, Bryan, & Kendall, 1968). Simple addition and other computations (Locke, 1967) have been used as cognitive tasks.

Learning tasks in the classroom are more complex and more difficult in relation to student abilities. The type of motor skill tasks and simple cognitive tasks usually employed in laboratory studies constitute only a small percentage of classroom learning. Most subject matter taught in elementary and secondary schools is more complex and is not as easily analyzed by the student. When students deal with simple cognitive tasks or with motor skills on a short-term basis, the type of goal which is appropriate is

usually readily apparent; with more complex and long-term tasks, the overall goal must be analyzed into more specific, short-term goals. Often, the material to be studied in class is entirely new to the student and he has no basis for predicting how much, or what, material he can learn. Therefore, goal-setting procedures used by experimenters in laboratory studies must be modified in order to enable students to set meaningful goals.

A third factor limiting the generalizability of laboratory findings to the classroom is the duration of the studies. For the most part, laboratory studies have been of extremely short duration and have provided immediate feedback on the accuracy of previously set goals. Few tasks have required longer than 1 or 2 hours for the individual to complete, and many have required as little as 5 minutes.

In a classroom setting, the learning activity is long term. Units of study may take weeks or months to complete, and almost without exception would be considered long-term in relation to current goal-setting studies. Coupled with the type of subjects and tasks usually used, the short-term nature of the laboratory studies creates problems in extending the findings directly to classroom situations in either elementary or secondary schools.

Consideration has been given to differences between typical laboratory procedures and related aspects of classroom situations. However, an additional, and important, aspect must also be considered. Goal setting itself is a somewhat abstract concept,

especially for elementary school children. The degree to which students understand the meaning of goal setting must be determined. If this is not done, possible experimental effects may not appear simply because subjects do not understand the goal-setting procedure.

The first section of this paper has pointed out some of the problems involved in making direct applications of goal-setting procedures used in laboratory studies to classroom situations. The second section of this paper will summarize experiments delineating the effect of several variables on goal-setting behavior. Although the results of these experiments may not be directly generalizable to the classroom, they provide a basis for the development of classroom goal-setting procedures and should therefore be considered in some detail.

II

RESEARCH ON VARIABLES IN GOAL SETTING

There is little doubt that the setting of performance goals facilitates learning. For example, Bayton (1948), Fryer (1964), Kausler (1959), and Lockette (1956) have all conducted research which related goal setting to performance. Although the investigators employed different experimental tasks and age groups, the same conclusion was reached by each: subjects who set goals attain a higher level of performance than subjects who do not set goals.

Goal setting, however, is influenced by many factors such as knowledge of results, explicitness of goals, difficulty of goals, origin of goals, and monetary incentives. Consideration of these variables could provide guidelines for developing effective goal-setting procedures for classroom use. In this section, research concerning the effects of several variables related to goal setting will be reviewed. In the review of each study, particular attention will be paid to the age of the subjects, nature of the task for which goals were set, and duration of the study, in order to suggest the generalizability of results to the school setting. Also, it will be noted whether the primary effect of the variable is on achievement, attitude, or the nature of the goals themselves.

Knowledge of Results

In the past, research concerning knowledge of results tended to center on its direct effect on performance. Several recent studies have indicated, however, that the primary effect of knowledge of results may be the shaping of an individual's goals. These goals, in turn, affect performance.

Fryer (1964) noted that goal-setting seemed to be more efficient than knowledge of results in increasing performance. He found that college students who set goals before each trial had a higher learning rate on a Morse Code task than students who were simply given knowledge of their score after each trial. However, a re-interpretation of the data by Locke (1966a) indicated that this finding was a function of the level of the goals set, rather than simply reflecting differential effects of goal setting and knowledge of results. The re-analysis showed that those subjects who set high goals did better than those given knowledge of results, while those who set low goals did worse.

With this as a basis, Locke began a series of studies (Locke, 1967; Locke & Bryan, 1966, 1967a, 1968a, 1969a, 1969b, 1969c; and Locke, Cartledge, & Koeppel, 1968) designed to investigate the relationship between goal setting and knowledge of results. In his studies, Locke used college students as subjects in short-term experiments and usually employed tasks involving simple arithmetic computations. A 2x2 design was typically employed, with knowledge of results versus no knowledge of results as one factor in the design. The

findings, which were consistent across studies, indicated that providing knowledge of results, per se, did not result in better performance. Rather, it was the type and level of performance goals that were set using the knowledge of results which was important. Essentially, the analysis indicated that knowledge of results affected performance levels to the degree to which the individual used the knowledge to modify his goals; if the student did not employ knowledge of results in this way, knowledge had little effect on his performance.

Porat and Haas (1969) carried out an experiment dealing with the effects of initial information and feedback on the goal setting and performance of graduate business students in a simulated industrial management situation. They noted that knowledge of results resulted in more accurate levels of goal setting and decision making. This result would seem to support Locke's contention that the primary role of knowledge of results is in its influence on the goal-setting process. The emphasis is placed on the role that knowledge of results plays in goal setting rather than on any intrinsic value of supplying knowledge of results.

The studies relating knowledge of results and goal setting indicate, then, that knowledge of results does not directly affect performance levels. Rather, it functions through its effect on the levels of goals set by an individual and in this way affects performance. Knowledge of results acts as an integral part of the goal-setting process; without this type of feedback it would be

impossible for an individual to judge the accuracy and appropriateness of his goals.

Explicitness of Goals

A second variable which has been shown to affect the outcome of goal setting is the degree of specificity of the goals. Typically, one of two types of goals are used by experimenters. The first is the "do your best" type of goal and is the most commonly used. The experimenter simply tells the subject, "do your best," leaving the individual free to interpret the goal in any manner he chooses. The second type of goal involves specific, quantitative goals which are phrased in terms of exact behaviors or skills. This type of goal can be provided by the experimenter or by the subject himself, although in most studies to date the experimenter has provided the goal.

The question of how explicit a goal or standard should be is not a new one. Mace (1935), using a complex computation task involving 4 digit numbers, reported that a changing goal based on previous performance was more effective in increasing achievement than instructions to students to "do your best." This technique of comparing "do your best" goals with other types of goals has served as the basis for more recent studies. Bayton (1948) found that the use of goals increased the achievement level of college students on the Minnesota Rate of Manipulation Test; as the goals became more specific the level of performance increased further.

In a series of studies using college students, Locke and Bryan (Bryan & Locke, 1967; Locke, 1967; Locke & Bryan, 1967b) investigated the effects of specific goals versus "do your best" goals on achievement. Although the tasks varied, including such things as simple addition, perceptual speed, and psychomotor coordination, the results in each case indicated that specific goals yielded superior performance levels when compared with the "do your best" goals.

In one of the studies (Bryan & Locke, 1967), low-motivation and high-motivation groups were selected on the bases of 1) discrepancies between performance rate and ability on a simple addition task and 2) differences in attitude ratings. Low-motivation subjects were given specific goals to reach, while the high motivation subjects were told to "do your best." When subjects were retested 4 to 8 weeks later, the low-motivation group had matched the high-motivation group in relation to both level of performance and attitude towards the task.

The results of these studies suggest that the setting of specific goals may have a strong effect on motivation. Providing specific goals has been shown to improve performance to a greater degree than simply providing the more general "do your best" type of goal.

Difficulty of Goals

Closely related to the question of the specificity of goals is the question of the maximal level of goal difficulty. As

mentioned earlier, Locke's (1966a) re-analysis of Fryer's (1964) data indicated that the performance of students who set high goals was superior to the performance of both those who received knowledge of results only and those who set lower goals.

A number of studies (Bryan & Locke, 1967; Locke, 1967; Locke & Bryan, 1966) have compared the effects of easy and difficult goals on the performance of both simple and complex computational tasks. All of the studies were short term and employed college students as subjects. The conclusions reached by each study were the same; the more difficult the goal, the higher the level of performance.

Locke and Bryan (1968b) also assessed the effect of goal-setting on academic performance over a relatively long time span using evaluative procedures similar to those used in laboratory experiments. The study employed college students as subjects and grade point averages as the dependent variable.

The students were asked to make four different grade point ratings (the grade point they hoped for, the grade point they expected, the grade point they would find minimally acceptable, and the grade point they would actually try for) for each of four criteria (history, easiest course, hardest course, and overall grade point average). When the goal ratings were related to the grade points actually attained, it was found that goal ratings correlated significantly with attained grades, and that

all but one correlation remained significant when the group was blocked on the basis of sex and scholastic ability. Locke and Bryan found that trying for difficult goals resulted in more frequent failure to reach the goals but a higher level of achievement than trying for the easier goals. This replicated the findings of earlier studies done in a short-term situation. However, the effect of the goal setting itself could not be evaluated directly since no control group was used.

The results cited above indicate that, within the limits studied, performance levels increase as goal difficulty increases. If goals were set higher than the subject's capability, however, the goals would not be attained and the relationship would diminish.

Originator of Goals

The question of who sets a specific goal in a goal-setting situation is an important one. Early work by Mace (1935) compared self-set goals with experimenter-set goals. His results indicated that self-set goals resulted in better performance than experimenter-set goals.

Locke (1966b) asked college students to generate uses for given objects. Students were assigned to one of three groups: self-set goals, experimenter-set "easy" goals, and experimenter-set "difficult" goals. He found that those subjects who set their own goals performed better than those subjects who received "easy" fixed goals, but less well than those receiving "difficult" fixed goals.

Locke, Bryan, and Kendall (1968) summarized five related studies which indicated that self-set goals were superior to experimenter-assigned goals, but only if the goals set by subjects were of appropriate difficulty and specificity.

Although the research in this area is not extensive, it strongly indicates that performance with self-set goals is superior to that under experimenter-set goals when the goals are relatively difficult to achieve.

Monetary Incentives

Two recent articles by Locke have examined the relationship of monetary incentives to performance in a goal-setting situation. In the first (Locke & Bryan, 1967a), twenty laboratory studies and two field studies were examined to determine the relationship between various factors related to goal setting. Locke and Bryan concluded that monetary incentives had no effect on performance which was independent of students' goals. In the second article (Locke, Bryan,& Kendall, 1968), the results of five studies investigating the relationship of monetary incentives, goals, and level of performance were reported. The results of the studies indicated a relationship between incentives and behavior; however, when goal level was controlled, the effect of the incentives on performance was no longer apparent. This would seem to indicate that monetary incentives function in a manner similar to that of knowledge of results. In both cases, performance is not affected directly, but is influenced by the individual's goals which in turn

are influenced by the incentive. It would seem, then, that to be effective, monetary incentives must change the individual student's goals.

III

RESEARCH ON THE EFFECTS OF GOAL-SETTING CONFERENCES

Two studies conducted at the Wisconsin Research and Development Center for Cognitive Learning have focused on the effect of individual conferences on achievement. In a teacher-conducted classroom study (Klausmeier, Quilling, & Wardrop, 1968) each student had a weekly individual conference with his arithmetic teacher. During the conference the individual student's progress was informally assessed and praise and encouragement was given by the teacher. Students in both the experimental group and the control group (who received no conferences) were provided with individual folders listing arithmetic concepts and skills in the form of behavioral objectives. As objectives were attained they were recorded in the folder and when a listed concept or skill was attained, the square corresponding to it was colored in. A comparison of the achievements of the experimental and control groups indicated that the conference group performed significantly better than the non-conference group.

The effect of the use of individual conferences on independent reading was examined by Schwenn, Sorenson, and Bavry (1970) The number of books read by Second-, Fourth-, and Sixth-Grade students was recorded over an 8-week period. Students in the

upper-third in number of books read were excluded from the subsequent study since it was felt that they were adequately motivated to read independently. The remainder of the students were randomly assigned to either an experimental or a control group. The experimental group received conferences on a weekly basis while the control group received no conferences. During the conferences the student discussed books he was reading and read aloud for the teacher. This procedure enabled the teacher to provide feedback on reading performance and to reinforce positive attitudes toward reading. Each conference lasted approximately 10 minutes and was conducted by either a classroom teacher or a teacher aide. The results of the study indicated that the students who received individual conferences read a significantly greater number of books than students who did not have conferences.

The conference technique used by Kennedy (1968) included goal-setting procedures and direct feedback. Students were assigned to one of four groups, with subjects in the first three groups receiving conferences. Subjects in the first group were simply told to "do your best"; members of the second group were instructed to state how many squares in their checklist folder they would try to fill in during the coming week; students in the third group were given specific goals by the teacher; and students in the fourth group received no conferences. The results of the study indicated that: (1) the conference groups performed better than the non-conference group, and (2) students with specific goals acquired

more concepts than students with general goals. The study is one of the few which has been carried out in the classroom with ongoing, long-term learning. Although the conference technique used in the two earlier studies was expanded to include goal setting, no attempt was made to ascertain the effect of the goal-setting procedures themselves as opposed to the effect of the conferences.

The three studies by Klausmeier, Quilling, and Wardrop (1968); Schwenn, Sorenson, and Bavry (1970); and Kennedy (1968) indicate the importance of the use of an individual conference procedure in which principles of motivation are systematically implemented. The Kennedy study sought to extend the conference technique by the inclusion of goal-setting procedures; however, since no provision was made for comparing the effects of the individual conference and effects of the goal-setting procedures, judgments could not be made concerning the relative effectiveness of the two techniques.

To separate the effects of the goal-setting procedures from those of the conference per se, Gaa (1970) conducted a study in an ongoing classroom situation in which three treatment groups were used: Goal Setting, Individual Conferences, and Control. The Goal-Setting group received a weekly conference during which they received feedback on classroom achievement and the accuracy of the goals they had set the previous week. At the end of the conference they were asked to choose goals for the next week from among those presented in a goal-setting check list. This procedure

allowed the individual to select from appropriate goals and insured that the goals would be specific in nature. The Conference group received conferences on the same schedule as the Goal-Setting group, but set no specific goals. This group served to determine if experimental effects were due to the goal-setting procedures or simply to a more general "conference effect." The Control group did not receive individual conferences, but received the same in-class instruction as the other treatment groups.

Subjects in the study were students in First through Fourth Grade. Students studied a specific reading skill and only those who had not previously acquired the reading skill were included in the experimental population.

General attitude toward reading and specific attitude toward the reading skills class were measured. Achievement level was assessed using both experimenter-developed and criterion-referenced tests appropriate to the reading skill studied. Three dependent measures were utilized to determine the effects of the goal-setting conferences on subsequent goal-setting behavior: number of goals set, absolute difference between number of goals set and number of goals achieved, and expressed confidence in ability to attain selected goals.

The subjects who participated in individual goal-setting conferences, in comparison with those who did not, set fewer goals, showed a smaller absolute difference between the number of goals set and number of goals attained, and also indicated less confidence in their ability to achieve the goals they had set. They also

had higher reading achievement than those students who set no goals. There were no significant differences between treatment groups on attitude measures.

The classroom studies cited above indicate that goal-setting conferences increase achievement and lead to the setting of more accurate goals when employed in an ongoing educational framework. However, further experimentation should be carried out to determine the variables influencing the effectiveness of goal setting in the classroom situation. Also, guidelines for the use of goal setting need to be developed and field tested.

IV

DIRECTIONS FOR FUTURE RESEARCH

Laboratory experiments and initial attempts to examine the effects of goal setting in the classroom have indicated that the use of goal setting can affect achievement levels and the setting of future goals. Further study of goal setting should proceed in two directions: (1) the delineation of the effects of goal-setting variables in ongoing classroom situations and (2) the formative evaluation of goal-setting procedures in elementary and secondary schools.

Suggested Research on Goal-Setting Variables

Duration of Goal-Setting Program

Up to the present time, studies in classrooms have been of relatively short duration. Although differences in achievement and goal-setting behavior have been found in these studies, no differences in attitude have been noted. Extending the period of time in which goal-setting procedures are used might increase the effects already demonstrated and perhaps induce an observable attitude change as well. On the other hand, achievement effects might diminish when goal setting is carried out over a long period of time. Attitude, achievement, and goal-setting behavior should be used as dependent

measures in order to fully assess the effects of goal setting over an extended period of time.

Interval between Conferences

The optimal time interval between conferences should also be determined. In the studies discussed earlier where individual conferences were employed, there was a 1-week interval between conferences. This interval was established arbitrarily and there is no reason to believe that this represents the ideal interval scheduling. For example, it may be the case that with younger elementary school children, goals should be set twice a week for maximum effectiveness. For secondary students the time interval might be increased to 2 weeks. In addition to studying the effect of the interval between conferences, the necessity for setting goals at each meeting should be examined. It might prove sufficient to set goals every 2 weeks, as long as feedback is provided on a weekly basis.

Knowledge of Results

Previous studies indicated knowledge of results affects performance by influencing the goals set by an individual. In a laboratory setting, knowledge of results is easily provided and may simply result from the subject's observation of his own actions. In the classroom, however, knowledge of results is often delayed for a considerable period of time and the student is usually dependent upon the teacher for feedback.

Several variables related to knowledge of results should be investigated in school settings. The first is whether feedback should be related to performance itself or to performance in relation to goals. Because feedback is a critical part of goal-setting procedures, it is important to determine which type or combination of types of feedback is most effective. The second variable which should be investigated is the frequency of the feedback. Various schedules of feedback (weekly, bi-weekly, etc.) should be tested for their effects on goal-setting behavior and achievement. A third variable which might be examined in conjunction with this is the relative effectiveness of general and specific feedback.

The research outlined above would provide a basis for the development of guidelines for using feedback to insure the maximum effectiveness of goal-setting procedures.

Specificity of Goals

Research indicates that specific goals lead to higher achievement levels than do the more general "do your best" type of goal. Typically, the "do your best" type of goal has been used in the classroom. However, with the current emphasis on stating behavioral objectives the opportunity for employing specific goals is increased. It is predicted that more explicit goals will result in higher levels of achievement in the classroom, just as they have in the laboratory. This prediction should be verified experimentally, however, before general recommendations are made.

If it is shown that specific goals are related to higher levels of achievement in the classroom, another question related to their use should be investigated: Should students be required to set specific goals, as in the study by Gaa (1970) or should this behavior be "shaped" through feedback provided by the teacher? In the shaping procedure the student would be allowed to set his own goals rather than selecting them from teacher-stated lists of behavioral objectives. Feedback would then be provided to the student concerning the explicitness of his goals. Teaching students to set explicit goals would not be feasible in a short-term study. However, on a long-term basis this might prove to be an effective technique which could be utilized in the classroom.

Goal Difficulty

The results of studies which have related goal difficulty to achievement have indicated that difficult goals produce higher performance levels than easy goals and that the harder the goals, the higher the level of performance. However, none of the studies was carried out in a classroom situation and all employed short-term tasks where appropriate goals were apparent to the subject.

When used in an educational setting, extremely difficult goals might well result in a failure rate high enough to discourage, rather than encourage, students. What is needed is a procedure whereby students can set goals at a level where positive reinforcement for achievement will be assured, but where the difficulty level of goals can be kept high enough to insure maximum achievement.

Certainly there is a delicate balance between the two, but perhaps the use of systematic feedback would provide the mechanism whereby the balance could be maintained.

Given the importance of positive reinforcement in learning and the results of the laboratory studies showing that high goals are "best," further research is needed to establish the relationship between goal difficulty, positive feedback, and achievement in classroom goal setting. The likelihood of success, and therefore reinforcement, decreases as goals become more difficult. The point at which the increase in motivation due to the setting of more difficult goals and the decrease in motivation due to the lower achievement rates for these goals counteract each other should be established.

Goal Originator

The question of who should set goals in an educational setting is not easily answered. In the studies discussed earlier in this paper, the subject was aware, because of the relatively simple nature of the tasks, of what constituted an appropriate goal. In the classroom this is usually not the case. The student is not familiar with the subject material to be studied and is not aware of what goals are appropriate.

The research on goal origins and on goal difficulty and specificity would seem to indicate that what is called for are self-set goals which are both specific and relatively difficult. As indicated above, in a classroom setting, and especially at the

elementary school level, the student is not aware of what constitutes an appropriate goal in terms of either specificity or difficulty. The problem, then, is for the teacher to indicate what appropriate goals might be, to provide information about the difficulty of possible goals, and to encourage the student to set his own goal.

Two areas of research are indicated in relation to this problem. First it should be established that self-set goals are superior to teacher-set goals in the classroom. Secondly, assuming self-set goals are superior, methods of assuring the appropriateness of goals while preserving the self-set nature of the goals must be established and tested for effectiveness.

Monetary Incentives

Goal-setting as a successful motivational technique requires that the individual student perceive some reason or payoff for classroom achievement. Students are often told that achievement (good grades) will lead to admission to college or to a better job. Social scientists have come to realize that these rationalizations do not reach or do not apply to many students in school. Many inner city children realize that there is no way they can attend college; they perceive that doing well and completing high school do not greatly increase their chances of getting a good job in the future. With many of the traditional motivations lacking in this type of situation, more attention should be given to monetary or token reinforcement systems.

These procedures would seem to work best with students from

low socioeconomic status backgrounds. The reinforcement systems probably should be introduced early in elementary school in order to insure that basic skills are learned and to establish school as a situation in which reinforcement is forthcoming. However, studies should be carried out to determine the effectiveness of monetary incentives in relation to socioeconomic status and age.

Since monetary incentives have been shown to influence performance in much the same way as knowledge of results, by modifying goals, it would seem relevant to investigate their effect on goal-setting procedures. The optimal method, amount, and schedule of payments would have to be determined. The establishment of monetary reinforcement coupled with goal-setting procedures might serve as a very efficient motivational technique for use where traditional "educational values" do not motivate students.

Formative Evaluation of Goal-Setting Procedures

The studies which have been done in classroom settings relating to goal setting have been concerned with examining the effects of variables such as goal specificity on goal setting, or have been concerned with assessing the effects of goal-setting procedures on dependent measures such as achievement, attitude, and goal-setting behavior. In neither case is the increase in achievement or attitude due to goal setting related to expenditure of money, time, or material. What has not been evaluated, then, is whether the increase in learning which results from the use of a goal-setting

procedure justifies the effort and cost entailed in implementing the procedure.

Assuming that the decision has been made to implement a goal-setting procedure, factions such as the following must be considered in order to fully evaluate the procedure:

1. How many hours of inservice training are required to train teachers to implement a goal-setting program? What activities should be included in this training?
2. Do teachers conduct conferences according to established guidelines?
3. Are teachers able to formulate specific, short-term goals related to instruction in each subject-matter area?
4. Are small-group conferences as effective as individual conferences?
5. How much time is required each week for teacher preparation and the conferences themselves?

Two lines of research have been proposed in this paper; the first relating to the delineation of the effects of experimental variables and, the second, to the evaluation of classroom goal-setting procedures. The two are closely related since establishing the classroom effects will help to establish a maximally effective goal-setting procedure for classroom use.

In raising points which might be studied, it is hoped that the results can be used to define an effective goal-setting procedure which will serve as a much-needed motivational technique for the classroom teacher.

REFERENCES

Bayton, J. A. Performance as a function of expressed and non-expressed levels of aspiration. American Psychologist, 1948, 3, 274. (Abstract)

Bryan, J. F., & Locke, E. A. Goal setting as a means of increasing motivation. Journal of Applied Psychology, 1967, 51, 274-277.

Fryer, F. W. An evaluation of level of aspiration as a training procedure. Englewood Cliffs, N. J.: Prentice Hall, 1964.

Gaa, J. P. Goal-setting behavior, achievement in reading, and attitude toward reading associated with individual goal-setting conferences. Technical Report from the Wisconsin Research and Development Center for Cognitive Learning, The University of Wisconsin, 1970, No. 142.

Helmstadter, G. C., & Ellis, D. S. Rate of manipulative learning as a function of goal-setting techniques. Journal of Experimental Psychology, 1952, 43, 125-129.

Kausler, D. H. Aspiration level as a determinant of performance. Journal of Personality, 1959, 27, 356-361.

Kennedy, B. J. Motivational effects of individual conferences and goal setting on performance and attitudes in arithmetic. Technical Report from the Wisconsin Research and Development Center for Cognitive Learning, The University of Wisconsin, 1968, No. 61.

Klausmeier, H. J., Quilling, M. R., & Wardrop, J. L. (Eds.) Research and development activities in R & I Units of five elementary schools of Racine, Wisconsin, 1966-67. Technical Report from the Wisconsin Research and Development Center for Cognitive Learning, The Univeristy of Wisconsin, 1968, No. 52.

Locke, E. A. The relationship of intentions to level of performance. Journal of Applied Psychology, 1966, 50, 60-66. (a)

Locke, E. A. The relationship of task success to task liking: A replication. Psychological Reports, 1966, 18, 552-554. (b)

Locke, E. A. Motivational effects of knowledge of results: Knowledge or goal setting? Journal of Applied Psychology, 1967, 51, 324-329.

Locke, E. A., & Bryan, J. F. The effects of goal-setting, rule learning, and knowledge of score on performance. American Journal of Psychology, 1966, 79, 451-457.

Locke, E. A., & Bryan, J. F. Goals and intentions as determinants of performance level, task choice, and attitudes. American Institute for Research Report, 1967, No. R 67-1. (a)

Locke, E. A., & Bryan, J. F. Performance goals as determinants of level of performance and boredom. Journal of Applied Psychology, 1967, 51, 120-130. (b)

Locke, E. A., & Bryan, J. F. Goal setting as a determinant of the effect of knowledge of score on performance. American Journal of Psychology, 1968, 81, 398-406. (a)

Locke, E. A., & Bryan, J. F. Grade goals as determinants of academic achievement. Journal of General Psychology, 1968, 79, 217-228. (b)

Locke, E. A., & Bryan, J. F. Knowledge of score and goal level as determinants of work rate. Journal of Applied Psychology, 1969, 53, 59-65. (a)

Locke, E. A., & Bryan, J. F. The directing function of goals in task performance. Organizational Behavior and Human Performance, 1969, 4, 35-42. (b)

Locke, E. A., & Bryan, J. F. Knowledge of score and goal level as determinants of work rate. Journal of Applied Psychology, 1969, 53, 59-65. (c)

Locke, E. A., Bryan, J. F., & Kendall, L. M. Goals and intentions as mediators of the effects of monetary incentives on behavior. Journal of Applied Psychology, 1968, 52, 104-121.

Locke, E. A., Cartledge, N., & Koeppel, J. Motivational effects of knowledge of results: A goal-setting phenomenon? Psychological Bulletin, 1968, 70, 474-485.

Lockette, R. A. The effects of level of aspiration upon the learning of skills. Dissertation Abstracts, 1956, 16, 284. (Abstract)

Mace, C. A. Incentives: Some experimental studies. Industrial Health Research Board (Great Britain), 1935, Report No. 72.

Porat, A. M., & Haas, J. A. Information effects on decision-making. Behavioral Science, 1969, 14(2), 98-104.

Schwenn, E. A., Sorenson, J. S., & Bavry, J. L. The effect of individual adult-child conferences on the independent reading of elementary school children. Technical Report from the Wisconsin Research and Development Center for Cognitive Learning, The University of Wisconsin, 1970, No. 125.